

CHAPTER 4

PRESENTATION AND INTERPRETATION OF DATA

CHAPTER 4**PRESENTATION AND INTERPRETATION OF DATA**

This chapter presents the information and data collected for the study and attempts its interpretation.

A) Present Methods and Practices of Traffic Planning Through Demand Forecasting

Following are the 'demand' assessing methods and practices adopted by MSRTC for 'traffic planning' purpose.

a) Public Representations

Divisional offices are the operational planning centres, where demands for services are collected through public representations. These demands come through the following various sources

- i) MP's/MLA's letters demanding services.
- ii) Head of village 'Sarpanch' giving representations for demanding service with big list of signatures of villagers.
- iii) 'Pravasi Sanghatana'- is one more organisation demanding services.
- iv) School Headmasters & Principals of educational institutions sending their demand for services directly to Divisional Office or through Depot Managers.
- v) Zilla parishad & Panchayat Samiti Presidents sending demands for services to divisional Controller.

vi) General public demanding the services through organised groups like staff of New Hospitals, Industries, Government departments, banks and residents of residential societies, new colonies as well as people associated with various religious places & trusts of temples.

b) Suggestions and Complaints by Passengers

In traffic section there is a separate cell for receiving and attending to passenger complaints and suggestions.

Passenger suggestions for any services or change in frequency of trips or change in timing of services are considered as demand.

Complaints of passengers regarding services are taken in right perspective. However Quantum of suggestions and complaints by passengers do not contribute substantially for 'traffic planning' even though suggestions and complaints are considered in the right perspective.

c) Analysis of Ticket Sales

Waybill is the document maintained by Conductors, routewise, tripwise and stagewise from which following information is generated.

- i) Total turnover of passengers at every stage of the trip.
- ii) Total earning realised on the trip & also for every stage sector of the trip.

From the above ticket sale analysis following parameters are evaluated.

- i) Tripwise % Load Factor.
- ii) passenger alighting & boarding trend at various stages of trip.
- d) Direct passenger travel data i.e. from origin to destination

Busy corridors of routes and also low potential sectors of routes can be identified with above data.

Analysis of Ticket Sales is powerful tool for determining potential realised by S.T. buses. This tool was powerful when MSRTC was enjoying complete monopoly in its real sense. When alternative legal or illegal modes of transport are available on roads then analysis of ticket sales as compared with historical data can give indication of the quantum of customers (passengers). S.T. is losing on the route or particular trip or in specific stage sector.

But again for this critical analysis present manual system of work is not suitable. It needs computerisation of the relevant sections in Divisional Offices. Such Analysis made through the angle of finding out trips, sectors and routes shows declining trend of % Load Factor.

e) A,B,C analysis of trips

From tripwise analysis of revenue and passengers travelled, datewise, for every ten days, monthwise EPK (Earning Per Kilometer) is compiled and then it is compared with the cost

levels such as

- i) Total Cost (TC)
- ii) Variable Cost (VC)

If EPK of trip exceeds TC then trip is classified as 'A' i.e. profit making trip.

If EPK of trip lies in between VC and TC then the trip is classified as 'B' trip. These 'B' trips cover marginal cost.

If EPK of trip is less than VC then trip is classified as 'C' trip and is named as uneconomical trip.

Thus economic viability of the trip is assessed from ABC analysis of trip which ultimately helps in decision making process of 'Traffic Planning'. However ABC analysis of the trips only shows economic viability of trips. Most of the trips, coming under C category are run for meeting the social obligation of MSRTC.

f) Break-Even Analysis

Cost-Volume-Profit (C-V-P) theory application also helps 'Traffic Planning' plan for producing effective kilometers with economic viability. Many times this technique is used as decision making tool.

g) Operational Judgement

By virtue of experience in operational field, decisions are taken of operating trips. Such decisions are purely based on

judgements. Many times, present practice of taking decisions of operating trips on judgements is contributing a lot to traffic planning.

B) Competition or Anticlandestine Strategy

In changing scenario automobile industry is resorting to large scale production and Motor Vehicles Act, 1988 provides a great scope to private operators. There are legal and illegal modes of transport which carry on clandestine operation. MSRTC started operating some trips on particular routes for demotivating clandestine operators.

C) Route Analysis for Ascertaining Capacity Utilisation

As stated in the chapter Project Design and Methodology, route analysis of selected routes in Kolhapur Division is attempted here.

a) Coverage of the Routes

In this analysis, important routes under Kolhapur Division are selected. These routes cover major portion of total passenger bus service. Further, the routes selected cover most of the major routes originating from Kolhapur Depot. An analysis of these routes is expected to bring out various aspects associated with capacity utilisation such as problems associated with bus frequency, controlling arrangements, time table, waiting time on bus stops.

The analysis given in this chapter is the outcome of

information obtained from the statistical office of the Kolhapur Division, personnel travelling on all these routes, personal contact and discussions with the passengers and personal discussion and meetings with some of the drivers and conductors at Kolhapur depot. It also contains the facts noticed based on the personal observation in respect of crowd formation, behaviour of passengers, drivers and conductors as well as frequency of buses.

b) Route Analysis

To find out the Capacity Utilisation through Route Analysis, in all 19 Routes were Selected from Kolhapur Division out of which 17 Routes originate from Kolhapur Depot, covering more than 10 kilometers upto 550 kilometers and one each from Vadgaon-Ghunki and Vadgaon-Kini which have a distance of 2 to 10 kilometers. Table 4.1 and 4.2 present relevant details of routes of Kolhapur Division of MSRTC selected for the study. These tables i.e. Table 4.1 and 4.2 are in a summarized form. They are compiled from the basic data obtained routewise for each month of the year 1994. This basic data for each route and under it, for its forward and return service, has been presented through the Table numbers 4.3 A & B to Table 4.21 A & B under appendices numbers 1A & B to 19A & B.

1. Kolhapur Satana Kolhapur

The distance between Kolhapur Satana route is 544 kilometers. The rate fare is Rs. 129.50. The number of trips

Table 4.1

SELECTED ROUTES OF KOLHAPUR DIVISION OF MSRTC AND THEIR PERFORMANCE IN 1994

Sr. No.	Name of Route	Route Distance Kilometers	No. of Trips Operated	Seating Capacity	Percentage Load Factors	Total No. of Passengers Travelled	Rate Fare
1.	Kolhapur - Satana (F) Kolhapur	544	362	19568	902	38425	129.5
			* 30	* 1630	* 75	* 3282	
	(R)	544	362	19568	866	73922	129.5
			* 30	* 1630	* 72	* 3660	
2.	Kolhapur - Bombay (F) Kolhapur	395	356	17266	861	13982	117.5
			* 29	* 1437	* 71	* 1165	
	Day Service (R)	395	365	17266	717	16695	117.5
			* 29	* 1437	* 59	* 1391	
3.	Kolhapur - Bombay (F) Kolhapur	395	356	17234	761	12837	117.5
			* 29	* 1433	* 63	* 1070	
	Night Service (R)	395	350	17234	887	16136	117.5
			* 29	* 1433	* 68	* 1344	
4.	Kolhapur - Solapur (F) Kolhapur	265	362	19548	768	38356	58.75
			* 30	* 1629	* 65	* 3196	
	Day Service (R)	265	362	19650	742	37322	58.75
			* 30	* 1637	* 62	* 3110	
5.	Kolhapur - Solapur (F) Kolhapur	265	357	19208	644	37751	65.0
			* 30	* 1600	* 53	* 3146	
	Night Service (R)	265	357	17278	721	40028	65.0
			* 30	* 1439	* 60	* 3335	
6.	Kolhapur - Pune (F) Kolhapur	237	1670	17278	718	83914	58.0
			* 139	* 1439	* 60	* 6992	
	Day Service (R)	237	1670	89020	717	89357	58.0
			* 139	* 7419	* 59	* 7446	
7.	Kolhapur - Pune (F) Kolhapur	237	814	39984	636	30606	72.0
			* 68	* 3332	* 53	* 2550	
	Semi-Luxury (R)	237	814	39984	612	33163	72.0
			* 68	* 3332	* 51	* 2762	

Table 4.1 Contd...

Sr. No.	Name of Route	Route Distance Kilometers	No. of Trips Operated	Seating Capacity	Percentage Load Factors	Total No. of Passengers Travelled	Rate Fare
8.	Kolhapur - Chiplun (F)	176	364	19710	944	50094	44.0
	Kolhapur		* 30	* 1642	* 78	* 4174	
	(R)	176	364	19710	1046	54664	44.0
			* 30	* 1642	* 87	* 4555	
9.	Kolhapur - Chandgad(F)	142	357	19278	829	36589	32.0
	Kolhapur		* 30	* 1606	* 69	* 5227	
	(R)	142	357	19278	829	36997	32.0
			* 30	* 1606	* 69	* 5285	
10.	Kolhapur - Chikodi (F)	79	364	19656	1121	41630	17.0
	Kolhapur		* 30	* 1638	* 93	* 3469	
	(R)	79	364	19656	1005	36353	17.0
			* 30	* 1638	* 83	* 3029	
11.	Kolhapur - Miraj (F)	52	487	26298	737	16981	12.0
	Kolhapur		* 40	* 2192	* 61	* 2428	
	(R)	52	487	24798	814	16368	12.0
			* 40	* 2066	* 67	* 2338	
12.	Kolhapur - Audumbar(F)	49	362	19548	770	25397	12.0
	Kolhapur		* 30	* 1629	* 64	* 2116	
	(R)	49	362	19548	718	23656	12.0
			* 30	* 1629	* 59	* 1971	
13.	Kolhapur - Sangli (F)	47	1258	60384	680	49144	15.0
	Kolhapur		* 104	* 5032	* 56	* 4095	
	(R)	47	1258	60384	764	50912	15.0
			* 104	* 5032	* 64	* 4242	
14.	Kolhapur-Warananagar(F)	31/42	611	32994	507	10629	8.0
	Kolhapur		* 51	* 2749	* 42	* 1518	
	(R)	31/42	611	32994	628	14295	8.0
			* 51	* 2749	* 53	* 2042	
15.	Kolhapur - Kodoli (F)	30/31	1446	78084	98	60504	6.75
	Kolhapur		* 120	* 6507	81	* 5042	
	(R)	30/31	1446	78084	1018	66236	6.75
			* 120	* 6507	84	* 5579	

Table 4.1 Contd...

Sr. No.	Name of Route	Route Distance Kilometers	No. of Trips Operated	Seating Capacity	Percentage Load Factors	Total No. of Passengers Travelled	Rate Fare
16.	Kolhapur-Ichalkaranji(F)	29	4631	250074	920	147823	6.75
	Kolhapur (R)		* 385	* 20839	* 76	* 12318	
			4151	227502	935	139777	6.75
			* 345	* 18958	* 77	* 11648	
17.	Kolhapur - Jotiba (F)	21.5	3807	205416	712	87643	5.0
	Kolhapur (R)		* 317	* 17118	* 59	* 7303	
			3781	204574	682	80724	5.0
			* 315	* 17047	* 56	* 6725	

(F) : Forward Route (R) : Return Route * Monthly Average

Source : Compiled from Records of Statistical Office, Kolhapur Division

Table 4.2

SELECTED ROUTES OF KOLHAPUR DIVISION OF MSRTC AND THEIR PERFORMANCE IN 1994

18.	Vadgaon - Ghunki (F)	8.8	431	232744	419	36559 *	2.0
	Vadgaon (R)		* 40	* 1939	* 35	* 522	
			431	23274	685	9130	2.0
			* 40	* 1939	* 57	* 1304	
19.	Vadgaon - Kini (F)	4.2	317	18118	241	2634	1.75
	Vadgaon (R)		* 26	* 1509	* 20	* 376	
			692	37368	388	8490	1.75
			* 57	* 3114	* 32	* 1213	

Route no.18 and 19 are shown separately as they represent other than Kolhapur Depot.

(F) : Forward Route (R) : Return Route * Monthly Average

Source : Compiled from Records of Statistical Office, Kolhapur Division

of MSRTC.

operated and the seating capacity on monthly average were 30 and 1630 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 3282 and the percentage load factor was 75. This shows the capacity utilisation of the bus service on this route was very satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 72. The total number of passengers travelled was 3660 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was more than normal both from the point of view of number of passengers travelled and the percentage load factor.

2. Kolhapur Bombay Kolhapur (Day Service)

The distance between Kolhapur Bombay route is 395 kilometers. The rate fare is Rs. 117.50. The number of trips operated and the seating capacity on monthly average were 29 and 1437 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average were 1165 and the percentage load factor was 71. This shows the capacity utilisation of the bus service on this route was very satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 59. The total number of passengers travelled was

1391 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was lowered by 11% in percentage load factor as against the percentage load factor in forward journey whereas the number of passengers travelled was higher than that of forward journey monthly average.

3. Kolhapur Bombay Kolhapur (Night Service)

The distance between Kolhapur Bombay route is 395 kilometers. The rate fare is Rs. 117.50. The number of trips operated and the seating capacity on monthly average were 29 and 1433 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average were 1070 and the percentage load factor was 63. This shows the capacity utilisation of the bus service on this route was more than practical capacity.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 68. The total number of passengers travelled was 1344 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was 5 percent higher in percentage load factor over the percentage load factor in forward journey monthly average and the number of passengers travelled considerably higher than that of forward journey monthly average.

4. Kolhapur Solapur Kolhapur (Day Service)

The distance between Kolhapur Solapur route is 265 kilometers. The rate fare is Rs. 58.75. The number of trips operated and the seating capacity on monthly average were 30 and 1629 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average were 3196 and the percentage load factor was 65. This shows the capacity utilisation of the bus service on this route was satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 62. The total number of passengers travelled was 3110 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was just normal.

5. Kolhapur Solapur Kolhapur (Night Service)

The distance between Kolhapur Solapur route is 265 kilometers. The rate fare is Rs. 65.00. The number of trips operated and the seating capacity on monthly average were 30 and 1600 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 3146 and the percentage load factor was 53. This shows the capacity utilisation of the bus service on this route was not even upto practical capacity.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 60. The total number of passengers travelled was 3335 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was normal.

6. Kolhapur Pune Kolhapur (Day Service)

The distance between Kolhapur Pune route is 237 kilometers. The rate fare is Rs. 58.00. The number of trips operated and the seating capacity on monthly average were 139 and 1439 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 6992 and the percentage load factor was 60. This shows the capacity utilisation of the bus service on this route was normal.

In case of return journey though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 59. The total number of passengers travelled was 7446 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was only normal inspite of the higher number of passengers travelled when compared to that of forward journey monthly average.

7. Kolhapur Pune Kolhapur (Semi-Luxury)

The distance between Kolhapur Pune route is 237 kilometers. The rate fare is Rs. 72.00. The number of trips operated

and the seating capacity on monthly average were 68 and 3332 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 2550 and the percentage load factor was 53. This shows the capacity utilisation of the bus service on this route was not even upto practical capacity.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 51. The total number of passengers travelled was 2762 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was less than the practical capacity though the number of passengers travelled was higher than that of forward journey monthly average.

8. Kolhapur Chiplun Kolhapur

The distance between Kolhapur Chiplun route is 176 kilometers. The rate fare is Rs. 44.00. The number of trips operated and the seating capacity on monthly average were 30 and 1642 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 4174 and the percentage load factor was 78. This shows the capacity utilisation of the bus service on this route was very satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage

Load Factor was 87. The total number of passengers travelled was 4555 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was very good both in terms of percentage load factor and the number of passengers travelled.

9. Kolhapur Chandgad Kolhapur

The distance between Kolhapur Chandgad route is 142 kilometers. The rate fare is Rs. 32.00. The number of trips operated and the seating capacity on monthly average were 30 and 1606 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 5227 and the percentage load factor was 69. This shows that the capacity utilisation of the bus service on this route was better than normal.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 69. The total number of passengers travelled was 5285 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was good both in terms of percentage load factor and the number of passengers travelled.

10. Kolhapur Chikodi Kolhapur

The distance between Kolhapur Chikodi route is 79 kilometers. The rate fare is Rs. 17.00. The number of trips

operated and the seating capacity on monthly average were 30 and 1638 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 3469 and the percentage load factor was 93. This shows the capacity utilisation of the bus service on this route was excellent.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 83. The total number of passengers travelled was 3029 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was very satisfactory. both in terms of percentage of load factor and the number of passengers travelled.

11. Kolhapur Miraj Kolhapur

The distance between Kolhapur Miraj route is 52 kilometers. The rate fare is Rs. 12.00. The number of trips operated and the seating capacity on monthly average were 40 and 292 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 2428 and the percentage load factor was 61. This shows the capacity utilisation of the bus service on this route was normal.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 67. The total number of passengers travelled was

2338 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was better in terms of percentage of load factor than that of forward journey monthly average but the number of passengers travelled was much lower than the figure of monthly average of passengers travelled in forward journey.

12. Kolhapur Audumbar Kolhapur

The distance between Kolhapur Audumbar route is 49 kilometers. The rate fare is Rs. 12.00. The number of trips operated and the seating capacity on monthly average were 30 and 1629 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 2116 and the percentage load factor was 64. This shows the capacity utilisation of the bus service on this route was satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 59. The total number of passengers travelled was 1971 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was just above practical capacity. But the number of passengers travelled when compared with that of forward journey was much lower.

13. Kolhapur Sangli Kolhapur (Semi Luxury)

The distance between Kolhapur Sangli route is 47

kilometers. The rate fare is Rs. 15.00. The number of trips operated and the seating capacity on monthly average were 104 and 5032 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 4095 and the percentage load factor was 56. This shows the capacity utilisation of the bus service on this route was just upto practical capacity.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 64. The total number of passengers travelled was 4242 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was more than satisfactory and the number of passengers travelled was also higher than that of corresponding figure for forward journey.

*14. Kolhapur Warananagar Kolhapur

The distance between Kolhapur Warananagar route is 31 kilometers. The rate fare is Rs. 8.00. The number of trips operated and the seating capacity on monthly average were 51 and 2749 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 1518 and the percentage load factor was 42. This shows the capacity utilisation of the bus service on this route was very unsatisfactory resulting in both idle capacity and spare capacity.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 53. The total number of passengers travelled was 2042 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was near the practical capacity though the number of passengers travelled was higher when compared with the corresponding figure of the forward journey.

15. Kolhapur Kodoli Kolhapur

The distance between Kolhapur Kodoli route is 30 kilometers. The rate fare is Rs. 6.75. The number of trips operated and the seating capacity on monthly average were 120 and 6507 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 4542 and the percentage load factor was 81. This shows the capacity utilisation of the bus service on this route was ideal and very satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 84. The total number of passengers travelled was 5579 on monthly average. This shows that in return journey also the capacity utilisation of the bus service on this route was constantly at an ideal level. The number of passengers travelled on return journey is also higher than the corresponding figure

for forward journey.

16. Kolhapur Ichalkaranji Kolhapur

The distance between Kolhapur Ichalkaranji route is 29 kilometers. The rate fare is Rs. 6.75. The number of trips operated and the seating capacity on monthly average were 385 and 20839 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 12318 and the percentage load factor was 67. This shows the capacity utilisation of the bus service on this route was very satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 77. The total number of passengers travelled was 11648 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was at a good level though the number of passengers travelled was lower than the corresponding figure for the forward journey.

17. Kolhapur Jotiba Kolhapur

The distance between Kolhapur Jotiba route is 21.5 kilometers. The rate fare is Rs. 5.00. The number of trips operated and the seating capacity on monthly average were 317 and 17118 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 7303 and the percentage load factor was 59. This shows the capacity utilisation of the bus

service on this route was satisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 56. The total number of passengers travelled was 6725 on monthly average. This shows that in return journey the capacity utilisation of the bus service on this route was slightly lower than the corresponding figure for the forward journey. The monthly average number of passengers travelled on return journey was also lower than the corresponding figure of the forward journey. This was due to the fact that some of the passengers travelled to Kolhapur via Panhala (another route).

18. Vadgaon Ghunki Vadgaon

The distance between Vadgaon Ghunki route is 8.8 kilometers. The rate fare is Rs. 2.00. The number of trips operated and the seating capacity on monthly average were 40 and 1939 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 522 and the percentage load factor was 35. This shows the capacity utilisation of the bus service on this route was very unsatisfactory.

In case of return journey, though the number of trips operated and the seating capacity were the same, the percentage Load Factor was 57. The total number of passengers travelled was 1304 on monthly average. This shows that in return journey the

capacity utilisation of the bus service on this route was above normal. The monthly average of number of passengers travelled on return journey was more than two times of the corresponding figure on forward journey.

19. Vadgaon Kini Vadgaon

The distance between Vadgaon Kini route is 4.2 kilometers. The rate fare is Rs. 1.75. The number of trips operated and the seating capacity on monthly average were 26 and 1509 respectively during the forward journey.

The total number of passengers travelled during the year 1994 on a monthly average was 376 and the percentage load factor was 20. This shows the capacity utilisation of the bus service on this route was very bad.

In case of return journey, though the number of trips operated and the seating capacity were more than doubled the percentage Load Factor was 32. The total number of passengers travelled was 1213 on monthly average. This shows that in return journey, though the capacity utilisation of the bus service on this route was better than the corresponding figure of the forward journey, there was lot of idle and spare capacity though the number of passengers travelled was higher than the corresponding figure for the forward journey by almost three times.

D) SERVICE-MIX IN MSRTC TRAFFIC OPERATION

MSRTC has to consider various factors which generate the demand for the services and their intensity, the distances

involved in providing the services, the feasibility of providing these services and then has to take the decision as to whether the service can be provided or not, the nature of the service to be provided, the frequency of the and other related matters. The changes in the attitudes, habits and needs of the people or changes desired in the travel pattern also have to be considered. On the basis of these considerations MSRTC has to determine its service-mix in its operation.

MSRTC is already moving in this direction. The following paragraphs explain the steps taken by MSRTC in this direction and also the proposals made by the researcher on the basis of her discussion with officers and her personal observations.

a) Janata Service

This concept was evolved by MSRTC particularly to serve the rural short distance traffic. MSRTC realised that their short distance traffic is carried away by clandestine jeeps, tempos, mini-buses etc. MSRTC, particularly in Pune Division, started Janata Service with proper fan fair and publicity. The Janata Service is that which can be stopped by passenger at any point by just giving a signal to stop (Hath dikhao and gadi roko). Crews were specially selected and they were advised to help the villagers who have luggage to be carried by Janata Bus. This experiment has helped the people who were harassed by the private operators who used to carry them like goats (25 people in a 10 capacity

vehicle). Janata service has also helped them to have better safety and security. Good frequency of this service has diverted the passengers previously using private vehicles and brought them to MSRTC. It has helped MSRTC in improving its revenue on such routes. For operation of Janata services, pockets were properly identified and services were planned accordingly.

b) SPECIAL MINI-BUS SERVICE FOR SHORT DISTANCE RURAL TRAFFIC

Short distance small traffic requires high frequency of service to attract it to MSRTC. Such a service has to be in the form of mini-buses due to small size of traffic. In absence of such service, around 15,000 such types of vehicles are being clandestinely operated in Maharashtra State to provide needed service to this type of passengers. To bring these passengers in the fold of MSRTC, mini-bus service of appropriate type will have to be considered. To make these service economical, one man operation (in which driver also takes care of the duties of the conductor in addition to driving) with a provision of fixed stops in a short distance and two or three fixed rates depending upon the distance to be travelled by the passenger, can be introduced. Due care in selecting proper model of vehicle, identification of pockets of such service can ensure success of such experiment.

c) LUXURY/DE-LUXE SERVICE

The concept of luxury service in MSRTC, it is felt, is yet at a primitive stage. Services having appropriately designed coaches for comfort and adequate space around with push back cushion chairs with arms, facility of booking the travel on phone or through travel agents, punctuality and minimum travel time and minimum stops, competitive rates can attract a good number of passengers who otherwise prefer taxis or trains or private luxury coach travel services at present.

It is seen that the service mix of MSRTC at present is based on two criteria. First criterion is based on distance according to which the service is classified as a) long distance service (having route distance above 250 kilometers, b) medium long distance service (having route distance of 151 to 250 kilometers), c) short distance service (having route distance of less than 150 kilometers). The second criterion is based on comfort or nature of service according to which the service is classified as a) Deluxe services, b) Luxury services, c) Semi-luxury services d) Ordinary services, e) City services. However as can be seen from Table 4.22 given below, the major constituent of the nature or comfortwise classified services of MSRTC i.e. ordinary services, accounts for 90.88% of the kilometers for which MSRTC provides its services.

Table 4.22

MIX OPERATIONS OF MSRTC

Type of Service	% of Kilometers
Luxury	0.55
Semi-Luxury	3.64
Ordinary	90.88
City	4.93

Total	100.00

Source : Monthly News Letter April-94:MSRTC-Central Office,Bombay

It is, therefore, imperative on MSRTC to take note of changing passenger needs on a continuous basis through appropriately updated methods of 'demand assessment' and adopt a flexible approach in arriving at service mix it should provide to, on one side meeting the passenger needs, and on the other side, to make its operation viable.